

## Chapter Four

# Preventing Pollution at the State and Tribal Level

- **Overview of State Programs**
- **State Program Activities**
- **Pollution Prevention on Tribal Lands**
- **Guest Comments:**
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  - Andrea Farrell, The National Pollution  
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## Introduction

State-based environmental programs have made a unique contribution to pollution prevention through their direct contact with industry and awareness of local needs. Whether they target specific industries for outreach and technical assistance or seek to transform the bureaucracy to accept the pollution prevention ethic, states continue to lead the pollution prevention movement. More recently, Native American tribes have also begun establishing pollution prevention programs.

### Assessment of Changes From 1991 to 1997

Since the 1991 pollution prevention progress report, states have continued to develop and refine their pollution prevention programs. Native American tribes have also begun establishing pollution prevention programs. Table 4-1 summarizes the activity levels in different aspects of program status in 1991 and 1997.

One of the most dramatic changes since the 1991 report is the decline of pollution prevention activity in the legislative arena. Legislative activity peaked in 1990, with 11 states enacting legislation to promote pollution prevention. While states continued to legislate facility planning and to enact other legislation through the end of 1991, only a handful of states have enacted new legislation since then. Furthermore, no additional states have enacted facility planning legislation since the end of 1991.

A trend that has continued since the last report is the development and implementation of state pollution prevention strategies. During 1991, approximately half of the states had convened work groups, advisory committees, and task forces to develop state pollution prevention strategies.<sup>1</sup> Today, most states have moved from the strategy development phase into implementation.

At the time of EPA's last report, most state programs were focused on teaching businesses about pollution prevention through outreach and technical assistance. In doing so, the states sought to instill the pollution prevention ethic throughout the business community. When studying the barriers to implementing pollution prevention, however, many states realized that sometimes the state regulatory structure was hampering the implementation of prevention activities. Thus, many states have increased efforts to integrate pollution prevention into the state bureaucracy. Initiatives have included training state and county regulators in pollution prevention, reviewing state regulations to identify barriers to pollution prevention, increasing referrals from the regulatory program to the technical assistance program, and incorporating pollution prevention considerations into permits, notices of violation, and settlement agreements.

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<sup>1</sup> Based on data reported through the Pollution Prevention Information Tracking System (PPITS), a data base that houses the most up-to-date information on state grants awarded by EPA's Pollution Prevention Division. PPITS stores information from initial grant proposals and is continually updated with new information from semiannual progress reports.

**Table 4-1. Pollution Prevention Program Status in 1991 and 1997**

	1991 Program Status	1997 Program Status
<b>States</b>		
<b>Legislation</b>	Widespread activity	Little new legislation since 1991
<b>Pollution Prevention Policy</b>	Development phase	Implementation phase
<b>Outreach Focus</b>	Industry	Industry and regulatory agencies
<b>Measurement</b>	Little measurement under way	States developing measurement methodologies
<b>Pollution Prevention Networks</b>	Emerging	Continuing to emerge
<b>Tribes</b>		
<b>Pollution Prevention Programs</b>	Few, if any, tribal programs	Tribal programs and networks emerging

The development of methods to measure pollution prevention progress and to evaluate state program effectiveness has emerged as an important new trend. Both the states and EPA are struggling with selection of the best approach. Since 1991, several states have increased their emphasis on measurement efforts. For example, North Carolina received a 1994 EPA grant to develop a pollution prevention measurement methodology for Region IV. Elsewhere, for example in Alabama, Massachusetts, Erie County (NY), Iowa, and Minnesota, efforts are under way to measure the success of programs. Measuring the success of specific projects in preventing pollution is proving a much simpler task than measuring the success of state programs as a whole. Some examples of the measures of success of specific projects are cited in this chapter. Program measurement remains one of the greatest challenges to all states, perhaps because the structure of existing regulatory programs and their measurement systems do not necessarily lend themselves to measuring source reduction collectively.<sup>2</sup> In 1996, EPA targeted its Pollution Prevention Incentives for States (PPIS) grants to help states develop measurement methodologies.

Another emerging trend is the attempt of state agencies to build pollution prevention networks throughout the state. Agencies that coordinate pollution prevention activities are working to develop partnerships with universities, National Institute for Science and Technology (NIST) Manufacturing Extension Partnerships (MEPs), Small Business Development Centers (SBDCs), local governments, nonprofit organizations, and state regulators. In addition, the states have sought to involve community groups in preventing pollution in economically disadvantaged neighborhoods. The 1997 grants cycle further supported this effort to develop networks and create partnerships.

<sup>2</sup> For a discussion of the larger issue of how pollution prevention can be measured on a national scale, see Chapter 7 - Measuring Pollution Prevention - in this report.

States have also recognized that many of their pollution prevention concerns cross state boundaries. Therefore, many states are working together in geographically-linked networks to share resources and expertise. One example of a regional network is the Northeast Waste Management Officials' Association (NEWMOA).

### **Regional Networking: NEWMOA**

NEWMOA is a non-profit interstate association of pollution prevention, hazardous and solid waste, and waste site cleanup program directors from state environmental agencies in New England, New Jersey, and New York. It was formally recognized by EPA in 1986. NEWMOA provides support services to its eight member states to enhance state capabilities, facilitate program and policy development, and foster communications. NEWMOA helps states articulate and promote regional positions and strategies for environmentally sound and effective waste management and pollution prevention programs.

EPA's Office of Pollution Prevention and Toxics (OPPT) also is convening the Media Association P2 Forum, which consists of program directors that sit on state waste, water, and air associations and members of the National Pollution Prevention Roundtable. Pollution prevention can be a common thread for single-media state programs, and the quarterly forum meetings provide a rare opportunity for these organizations to discuss pollution prevention. Additionally, OPPT will be commencing a pollution prevention project group as part of the Forum on State and Tribal Toxics Action (FOSTTA). FOSTTA serves as a mechanism for state and tribal officials to cooperate in addressing toxics related issues and to improve communication and coordination among states, tribes, and EPA.

This chapter focuses on current state and tribal pollution prevention activities, beginning with an overview of state programs. The next section characterizes activities common to state programs, followed by a description of the pollution prevention activities under way on tribal lands. The final section discusses challenges facing state and tribal programs in the upcoming years.

## **Overview of State Programs**

State pollution prevention programs vary widely in scope. Noting the differing needs of the states, EPA designed its PPIS grants to be very flexible. To receive funding under PPIS, states are required to assess local needs and design a program to meet those needs. The grant program also encourages the states to combine forces with other state organizations actively promoting

### **National P2 Roundtable**

The National Pollution Prevention Roundtable (NPPR) is the largest membership association of state, local and tribal government programs devoted solely to supporting efforts to eliminate or reduce pollution at the source. The Roundtable's affiliate membership includes representatives from private industry, nonprofit organizations, trade associations, federal agencies and academic institutions. For more than ten years, the Roundtable has fostered the development, implementation, and evaluation of pollution prevention programs. The National Roundtable's state and local government members located in every state provide pollution prevention information to thousands of industrial, commercial and agricultural facilities each year.

pollution prevention. These directives, together with the varied ways proactive states have approached pollution prevention independent of EPA, have resulted in a varied array of state programs. This section describes the legislative mandates, organizational structure, and approaches of the state pollution prevention programs. Much of the information in this chapter was gathered by the National Pollution Prevention Roundtable.

### Legislation<sup>3</sup>

Slightly more than half of the states (30 total) have enacted legislation that promotes pollution prevention. While most of this legislation was enacted between 1989 and 1991, a few states passed pollution prevention bills as early as 1987. For example,

Louisiana enacted the 1987 Waste Reduction Law, which requires certain waste generators to report on both previous and planned waste reduction efforts. Similarly, Michigan enacted legislation in 1987 to establish pollution prevention staff in two state agencies, one regulatory and one non-regulatory.

Following these early efforts, 28 states enacted legislation promoting pollution prevention between 1988 and 1991. Legislative activity peaked in 1990, when 11 states enacted legislation. From 1992 to March 1994, only a handful

#### Michigan's Pollution Prevention Legislation

Michigan's 1987 Waste Reduction Assistance Act, created a non-regulatory technical assistance program in the Department of Commerce designed to:

- Create an information clearinghouse
- Provide on-site waste audits
- Establish a grant program

Michigan's Waste Minimization Act, created an Office of Waste Reduction in the Department of Natural Resources. The law required this office to:

- Encourage waste reduction in the regulatory program
- Explore opportunities for incorporating waste reduction into permitting
- Document waste reduction efforts in environmental impact statements
- Study the value of imposing statewide reduction goals
- Publish an annual report of waste reduction efforts

of states, including Georgia, Colorado, Pennsylvania, and Virginia, enacted new pollution prevention legislation. The scope of state laws range from requiring facilities to submit pollution prevention plans, to levying fees on waste generation, to establishing pollution prevention programs and state policies.

#### Fees

Some states have authority to levy fees on hazardous waste generators. Fees collected generally are used to support state pollution prevention efforts. States with legislation regarding fees frequently tax hazardous waste generators based on the volume and/or destination (e.g., recycling, treatment, storage, or disposal) of the waste. For example, in its 1991 Amendments to Hazardous Waste Management Statutes, Arizona estab-

<sup>3</sup> National Pollution Prevention Roundtable (NPPR). *The Source: The Ultimate Guide to State Pollution Prevention Legislation* (July 1996). Available from NPPR: (202) 466-7272.

lished a Hazardous Waste Management Fund, to be supported through the following contributions:

- Facilities that ship hazardous waste off site pay \$10/ton.
- Facilities that dispose of hazardous waste pay \$40/ton.
- Facilities that retain their hazardous waste for onsite disposal pay \$4/ton.

With its 1990 Toxics Use Reduction Act, Massachusetts established base fees for companies of varying sizes. The base fee increases by increments of \$300 per listed toxic substance used and is periodically adjusted. Similarly, the Minnesota Toxic Pollution Prevention Act assesses a \$150 fee for each toxic chemical reported by a facility; \$500 if total facility toxic release is under 25,000 pounds annually, and two cents a pound up to a maximum of \$30,000 for facilities releasing more than 25,000 pounds.

### *Establishment of Pollution Prevention Programs/Policies*

Many states have enacted legislation to establish pollution prevention programs or to institutionalize state waste reduction policies. Virginia passed legislation in 1993 that established pollution prevention as the preferred waste management option. The 1993 Amendment to the Waste Management Act called for the state to remove barriers to pollution prevention and provide encouragement and assistance for such activities.

Many states have developed a formal pollution prevention strategy or policy statement, often one that is consistent with the environmental protection hierarchy of the federal Pollution Prevention Act. For example, Colorado's 1992 Pollution Prevention Act declares that "it will be the state's policy that pollution prevention is the environmental management tool of first choice. Only pollution that cannot be prevented can be recycled, treated, or disposed" and only in an environmentally safe manner. Other states have developed formal pollution prevention strategies that articulate a mission or goals, objectives, and an implementation schedule. New Hampshire's *Strategic Plan and Pollution Prevention Strategy*, for example, describes the state's goals and recommended actions on specific issues in the areas of program infrastructure, targeting activities, outreach, and regulatory integration.

When developing their pollution prevention strategies, some states have convened task forces or advisory committees to gain input from industry and other interested parties. Florida, for example, formed a Pollution Prevention Council within the Department of Environmental Regulation. The Council, composed of representatives from business, industry, agriculture, government, and environmental groups, issued a report that included recommendations on: statewide pollution prevention guidelines; evaluation of opportunities, incentives, and the potential for cooperation; and recommendations on permanent sources of funding for the program. Similarly, Georgia's Environmental Protection Division formed a Pollution Prevention Strategy Task Force to develop a strategy for integrating pollution prevention into the state's regulatory programs.

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## **Organizational Structure**

EPA defines a state pollution prevention program as all those organizational units that work together to implement the state's pollution prevention agenda.

Several types of organizational units can make up a state pollution prevention program, ranging from offices in state regulatory agencies, to university departments, to nonprofit foundations, to local governments. Additionally, the NIST MEPs and a number of the SBDCs provide pollution prevention services. Even within regulatory agencies, different types of organizational units can implement the pollution prevention activities. For example, pollution prevention staff may be located within the media programs (air, water, solid/hazardous waste). Other staff may be completely separate from the media programs, located, for instance, in a state commissioner's office, special projects division, or pollution prevention division. Some states implement pollution prevention activities through an ombudsman or small business technical assistance program.

Most states coordinate pollution prevention activities through a non-media office in the state environmental regulatory agency. For example, Maine relies on its Office of Pollution Prevention within the state Department of Environmental Protection. While some states may implement the entire pollution prevention program through this type of office, other states will use several organizational units to fulfill their mission. For instance, Alabama implements its program through three organizational units: a non-media office in the environmental regulatory agency, the Ombudsman/Small Business Technical Assistance program, and the Waste Reduction and Technology Transfer (WRATT) Foundation. Table 4-2 identifies which organizations each state uses to implement its pollution prevention program.

**Table 4-2. Components of State Pollution Prevention Programs<sup>4</sup>**

State	State Regulatory Agency			Non-Regulatory Agency			Local Gov't Agency
	Media	SBTAP	Non-media	University	MEP	NGO	
AL		✓	✓			✓	
AK	✓		✓				
AZ		✓	✓		✓		✓
AR			✓				
CA	✓		✓	✓	✓		✓
CO			✓	✓			
CT		✓	✓		✓		

<sup>4</sup> Source: *The Pollution Prevention Yellow Pages*. National Pollution Prevention Roundtable, September 1995. For this table *Media* refers to a pollution prevention staff in the air, solid/hazardous waste, or water program of the state regulatory agency. It includes Air Quality Small Business Assistance Programs. *SBTAP* refers to staff in small business technical assistance programs or an ombudsman's office in the state regulatory agency. *Non-media* refers to staff in non-regulatory, non-media offices of state regulatory agencies. *Universities* refers to any pollution prevention technical assistance or education program in a state or private university. *MEP* refers to NIST Manufacturing Extension Partnership centers. *NGO* refers to private, nonprofit agencies (nongovernmental organizations) within the state that provide pollution prevention services. *Local* refers to local pollution prevention programs (either city or county). These programs may be based in a regulatory or non-regulatory setting.

**Table 4-2. Components of State Pollution Prevention Programs (Cont'd)**

State	State Regulatory Agency			Non-Regulatory Agency			Local Gov't Agency
	Media	SBTAP	Non-media	University	MEP	NGO	
DE			✓		✓		
FL		✓	✓	✓			✓
GA		✓	✓	✓	✓		
HI	✓		✓				
ID			✓				
IL			✓	✓	✓		✓
IN		✓	✓	✓			
IA	✓		✓	✓	✓		
KS			✓	4 <sup>5</sup>	✓		
KY				✓	✓		
LA		✓		✓			
ME			✓				
MD		✓	✓		✓		
MA	✓	✓	✓	✓	✓		
MI			✓	✓	✓		✓
MN		✓	✓	✓	✓		
MS		✓	✓				
MO		✓	✓				
MT	✓	✓		✓			
NE			✓				✓
NV				✓ <sup>6</sup>			
NH		✓	✓				
NJ			✓	✓			
NM				✓	✓	✓	
NY		✓	✓	✓	✓		✓
NC			✓	✓			
ND			✓	✓			

<sup>5</sup> The University of Kansas operates a Small Business Assistance program.<sup>6</sup> The University of Nevada at Reno houses the offices of the Nevada Small Business Development Center.

**Table 4-2. Components of State Pollution Prevention Programs (Cont'd)**

State	State Regulatory Agency			Non-Regulatory Agency			Local Gov't Agency
	Media	SBTAP	Non-media	University	MEP	NGO	
OH			✓	✓	✓		✓
OK			✓		✓		
OR	✓		✓				
PA		✓	✓	✓	✓	✓	✓
RI			✓	✓			
SC			✓	✓	✓		
SD			✓				
TN	✓	✓	✓	✓			
TX	✓	✓	✓	✓			
UT	✓	✓	✓				
VT			✓			✓	
VA			✓	✓	✓		
WA	✓	✓	✓				✓
WV	✓			✓			
WI	✓	✓	✓	✓			
WY	✓						

### Program Approaches

State programs may undertake a variety of activities to achieve their pollution prevention goals. In general, four approaches are used by the states to implement their programs: technical assistance/outreach, mandatory facility planning, regulatory integration or coordination, and voluntary partnerships. States often use a combination of all three of these approaches.

#### *Technical Assistance/Outreach*

The first approach is to provide technical assistance, outreach, and training to businesses in the hope that they will initiate pollution prevention activities. Many states favored this approach when beginning their programs based on the assumption that businesses would reduce or eliminate pollution voluntarily if they received proper training and education on the cost savings associated with pollution prevention. For example, eight of the first nine grants awarded under EPA's PPIS grant program in 1989 focused at least in part on technical assistance, outreach, and training.

### *Mandatory Facility Planning*

The facility planning approach was used by states such as California, Massachusetts, New Jersey, and Washington in the early development of pollution prevention programs. Through legislation, these states required certain industrial facilities to study pollution prevention opportunities in their operations and report on their findings. While the laws do not require reporting facilities to implement specific activities identified in the opportunity assessments, many do require facilities to explain their rationale for not implementing all viable opportunities identified. This approach assumes that once facilities have examined pollution prevention opportunities, they will implement these activities due to the potential cost savings.

### *Regulatory Integration*

The states are increasingly attempting to integrate pollution prevention throughout their regulatory programs. In doing so, states do not mandate pollution prevention, but they attempt to remove bureaucratic barriers to pollution prevention and encourage pollution prevention in the regulatory process. In 1994 and 1995, 20 percent of PPIS grant awards were for regulatory integration. Examples of regulatory integration activities include:

- Reviewing regulations to reduce barriers to pollution prevention.
- Referring facilities to the technical assistance program from the regulatory program (e.g., after inspections, when facilities apply for permits, in notices of violation).
- Facilitating pollution prevention in air, water, and waste permits.
- Incorporating pollution prevention into settlement agreements for violations.
- Training state/county regulatory staff to understand basic pollution prevention concepts and identify opportunities to minimize the cross-media transfer of pollutants during regulatory activities.
- Experimenting with facility-wide permits and/or multimedia inspections.

### *Voluntary Programs*

Many states have established voluntary programs (often modeled after EPA's voluntary partnerships) to promote prevention. For example, in Texas the *Clean Texas Star* and the *Clean Industries 2000* have received wide participation. Begun in August 1995, *Clean Texas Star* is a voluntary program intended to reduce the generation of non-hazardous industrial waste and encourage recycling by Texas businesses, schools, and other institutions. The program sets measurable goals for reductions and recycled content purchases, and provides public recognition for members that achieve their goals. It offers a range of goals appropriate to many sizes and types of businesses, relying on a network of partnerships with non-profits, local governments and trade associations to assist in recruiting and recognizing the over 3,000 members. Mem-

States are increasingly attempting to integrate pollution prevention throughout their regulatory programs.

bers tripled their recycling rate in 1995, the first year of the program. It is the largest and fastest growing program of this type in the country. One participant, a medical supply manufacturer, recycled 105.3 tons of cardboard in 1994 and 1995, an increase of 300 percent. The company currently recycles an average of 15 tons of wastepaper a month.

The *Clean Industries 2000* program is a facility-based voluntary reduction program open to industrial facilities whose managers agree to reduce hazardous waste generation and/or releases of pollutants into the environment by 50 percent by the year 2000. Member facilities must also develop an internal environmental management program, sponsor one or more community environmental projects, and have environmental communication programs with their communities. Currently, there are 163 members located throughout the state. Clean Industries members have achieved reduction in TRI releases from 1987 to 1994 of 29 percent, representing a decrease in toxics of 60 million pounds or approximately 408,000 pounds per facility. Between 1992 and 1994, members reduced the generation of hazardous waste by 15.3 million tons. They sponsor 515 community environmental projects and participate in 152 citizen communication programs. One member facility, Phillips 66 Borger Complex, a petroleum refinery, was one of the first participants in the Flexible Permit Program. The flexible permit replaced multiple air emissions permits with a single permit which sets maximum allowable emissions but lets facility managers decide how to meet requirements. Emissions will decrease over 10 years for a total reduction of 13,000 tons (40 percent) by 2005.

Two of EPA's regions have launched awards programs that consider applicants across a number of states. Region X's Evergreen Award Program honors environmental leaders in the business community who promote a cleaner and safer environment and save operating costs at the same time. Region IX's Green Business Recognition Program utilizes a multimedia checklist to reward businesses as diverse as auto repair shops and wineries that have strong compliance and pollution prevention records.

## State Program Activities

### Technical Assistance, Outreach, and Education

Technical assistance activities include opportunity assessments, information clearing-houses, facility planning, hotlines, computer searches, and research projects. Outreach and education activities include workshops, seminars, training, publications, and grants and loans. Table 4-3 summarizes these activities.

#### *Opportunity Assessments*

At least 40 state programs offer confidential, onsite pollution and waste assessments for small (and sometimes larger) businesses. The assessments generally take place outside of the regulatory environment and on a voluntary basis, thereby providing businesses with information on how to save money, increase efficiency, and promote

**Table 4-3. Pollution Prevention Activities in the States<sup>7</sup>**

State	Technical Assistance Activities						Outreach and Education Activities		
	Opportunity Assessment	Clearing -houses	Facility Planning	Hotlines	Computer Searches	Research	Workshops/ Seminars/ Training	Publications	Grants and Loans
AL	✓		✓		✓	✓	✓		
AK									
AZ	✓				✓		✓	✓	
AR	✓		✓						
CA	✓	✓	✓	✓	✓	✓	✓		✓
CO	✓		✓				✓	✓	✓
CT	✓	✓		✓	✓		✓	✓	✓
DE	✓				✓		✓		
FL	✓	✓	✓	✓			✓	✓	
GA	✓	✓	✓	✓	✓	✓	✓	✓	
HI						✓	✓	✓	
ID					✓		✓		
IL	✓	✓	✓	✓		✓	✓	✓	✓
IN	✓	✓	✓		✓	✓	✓	✓	✓
IA	✓		✓		✓	✓	✓	✓	✓
KS	✓		✓	✓			✓	✓	
KY	✓		✓		✓	✓	✓		
LA	✓		✓		✓		✓		
ME	✓		✓		✓	✓	✓		✓
MD			✓				✓		
MA					✓	✓	✓	✓	✓
MI	✓			✓		✓	✓	✓	
MN	✓		✓	✓		✓	✓	✓	✓
MS									
MO							✓		

<sup>7</sup> Source: National Pollution Prevention Roundtable *The Pollution Prevention Yellow Pages* (September 1995). This table presents a snapshot of state P2 activities; however, given the dynamic nature of these activities, there may be more recent changes not reflected here.

**Table 4-3. Pollution Prevention Activities in the States(Cont'd)**

State	Technical Assistance Activities						Outreach and Education Activities		
	Opportunity Assessment	Clearing -houses	Facility Planning	Hotlines	Computer Searches	Research	Workshops/ Seminars/ Training	Publications	Grants and Loans
MT	✓				✓	✓	✓		✓
NE	✓		✓				✓		
NV	✓			✓		✓	✓	✓	
NH	✓		✓		✓	✓	✓	✓	✓
NJ	✓		✓		✓	✓	✓		
NM					✓	✓	✓		
NY	✓		✓		✓		✓		✓
NC	✓		✓		✓	✓	✓		✓
ND	✓		✓		✓	✓	✓	✓	
OH	✓		✓		✓		✓		✓
OK	✓						✓		
OR	✓		✓		✓	✓	✓		
PA	✓		✓		✓	✓	✓		✓
RI	✓		✓		✓	✓	✓		✓
SC	✓		✓		✓	✓	✓	✓	
SD									
TN	✓		✓		✓	✓	✓		✓
TX	✓		✓	✓	✓	✓	✓	✓	✓
UT		✓				✓	✓	✓	✓
VT	✓		✓		✓		✓		✓
VA	✓				✓		✓		
WA	✓		✓		✓	✓	✓	✓	✓
WV	✓		✓						
WI	✓	✓	✓		✓	✓	✓	✓	✓
WY	✓		✓				✓		

a good public image. Waste assessment engineers review all operations of a business to identify potential waste reduction strategies and opportunities. Later, companies receive a detailed report that evaluates waste reduction opportunities and provides specific recommendations for action. The decision of whether to implement any recommended option is left entirely to the company.

Many states employ retired engineers and graduate students to conduct assessments. The retired engineers enhance the credibility of state programs with industry. Involving graduate students in the process helps the students to learn the pollution prevention approaches and encourages them to employ it in their careers.

By informing businesses about more efficient production technologies and encouraging them to use pollution prevention equipment to proactively avoid compliance costs, state pollution prevention programs have helped industry recognize the economic benefits of source reduction. In some cases, state programs achieved substantial cost savings for businesses. For example:

- Businesses that received assistance from Kentucky Partners saved approximately \$3 million annually by implementing pollution prevention measures.<sup>8</sup>
- Florida's Waste Reduction Assistance Program (WRAP) has saved businesses \$3.7 million.<sup>9</sup>
- Companies receiving technical assistance from Alabama's Waste Reduction and Technology Transfer (WRATT) program saved \$160,000 on average.<sup>10</sup>
- Iowa Waste Reduction Assistance Program (WRAP) has helped businesses in Iowa save more than \$1.5 million annually.<sup>11</sup>
- Facilities that received assistance from Texas' Permanent Pollution Prevention Program and Site Assessment Visit Programs are saving over 30 million dollars annually; have reduced hazardous wastes generations by 34,000 tons, non-hazardous wastes generation by 52,600 tons, and VOC emissions by 179,000 pounds; and have conserved over 300 million gallons of water and 11 million kilowatt hours of electricity by implementing pollution prevention projects in their facilities.<sup>12</sup>

In terms of environmental benefits, such as pollution avoided or waste reduced, some state programs have been able to measure significant results attributable to technical assistance activities. Sample benefits include:

<sup>8</sup> Kentucky Partners. *Fact Sheet* (January 1994).

<sup>9</sup> EPA. *Pollution Prevention Incentives for States* (Spring 1994).

<sup>10</sup> Alabama Department of Environmental Management. *Alabama Pollution Prevention Program Final Progress Report* (1994).

<sup>11</sup> Iowa Department of Natural Resources. *Pollution Prevention Works for Iowa: Case Studies* (April 1993).

<sup>12</sup> Texas Natural Resource Conservation Commission. *Pollution Prevention and Recycling in Texas: Report to the 75th Legislature* (March 1997).

- Tennessee showed a decrease in toxic releases of about 42 percent.<sup>13</sup>
- West Virginia experienced a 53 percent decrease in toxic releases.<sup>14</sup>
- Rhode Island's program reduced 3.4 million pounds of liquid waste and 20,000 pounds of solid waste.<sup>15</sup>

### *Information Clearinghouses*

According to EPA's Pollution Prevention Information Tracking System data, over 30 states operate information clearinghouses. In essence, a clearinghouse is a compilation of pollution prevention documents that can be accessed by state regulatory staff, targeted audiences, and the general public. These information centers generally provide technical information on request.

For example, the Virginia Department of Environmental Quality maintains an extensive library of pollution prevention materials. This clearinghouse contains more than 3,000 books, articles, papers, and videos that cover all aspects of pollution prevention. The program makes its materials available for use by other organizations and is planning to put the information clearinghouse index online so that the library will be accessible to other department staff and the general public for searching and requesting information.

### *Facility Planning Assistance*

Over twenty states administer some kind of facility pollution prevention planning program. These programs are designed to encourage facilities that generate pollution to evaluate their processes with an eye toward eliminating waste and pollution. Although there is a substantial variation among the approaches taken by individual states, the planning programs have a core of common elements, including:

- **Scope of Coverage.** Planning requirements apply to facilities already subject to regulations, generally hazardous waste generators under RCRA or facilities subject to TRI reporting under EPCRA Section 313. Some states limit the planning requirements to larger businesses (RCRA large quantity generators), while others require planning from smaller entities (RCRA small quantity generators) as well.
- **Wastes and Chemicals Addressed.** Facility planning laws generally address toxic chemicals, as listed under EPCRA Section 313, or hazardous wastes, as defined under RCRA or state hazardous waste laws. However, plans may go

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<sup>13</sup> Personal communication with George Smelcer, University of Tennessee Center for Industrial Services (May 1995).

<sup>14</sup> National Institute for Chemical Studies. *West Virginia Scorecard* (1992).

<sup>15</sup> Rhode Island Department of Environmental Management. *Pollution Prevention in Rhode Island: Final Report on DEM's Pollution Prevention Program* (June 1994).

beyond the scope of particular lists of substances or wastes to encourage prevention and to discourage waste shifting across environmental media.

- **Focus of Planning.** While all of the planning processes emphasize pollution prevention, some focus specifically on reducing the use of toxic or hazardous substances or reducing the generation of waste and pollution. Some programs emphasize recycling as well as prevention.
- **Key Plan Elements.** Plan elements generally include: assessment of existing processes that use or generate toxic chemicals or hazardous substances or wastes; technical and economic evaluation of the feasibility of reduction options; identification of options to be implemented; and establishment of numeric or other specific performance goals.
- **Confidentiality and Public Availability.** The planning process may preserve the confidentiality of some documents. Plans, or the assessments that underlie the plans, are often kept confidential, whereas plan summaries, annual reports, or planning goals are more often made public. Plans are generally available at the site to state officials.
- **Statement of Corporate and Facility Management.** Plans generally require a statement from corporate or facility management. Key elements of the statement relate to the accuracy and completeness of the plan and a commitment to implement the plan.
- **Plan Summaries and Progress Reports.** Plan summaries and progress reports are generally provided to the state agencies and made available to the public. The summaries and reports might include numeric goals, information on wastes generated and released, and schedules and progress made towards attaining plan objectives.
- **Technical Assistance.** States are generally authorized to run technical assistance programs to aid companies, particularly small businesses, in plan development and other related activities.
- **Compliance, Enforcement and Requirements for Implementation.** States may have the authority to enforce compliance with the requirement to submit plans or reports. However, they generally do not have the authority to enforce compliance with the plans themselves, unless the plans are implemented through some other vehicle, like a permit. The private recognition of waste and inefficiency, coupled with public awareness of releases into the environment, may be an incentive for industry to implement the plans. Some states have eschewed the use of their enforcement authorities and have chosen to implement their programs in a non-regulatory fashion.
- **Assessment of Progress.** Several state programs have provisions for assessing progress in particular sectors or user segments. Some states are authorized to

disseminate information about successful approaches, while others can set performance standards for particular segments.

Some state programs include additional planning elements, such as materials use data analysis and reporting, the indexing of wastes or pollution to levels of production, and mandatory employee training.

Many of these programs have been in operation since the early 1990s, and several states have evaluated their progress. The National Pollution Prevention Roundtable's Facility Planning Group recently reviewed a number of these state program evaluations. The review, which looked at evaluations from Massachusetts, Minnesota, New Jersey, Oregon, Texas, California, and Washington, concluded that a majority of the programs found pollution prevention planning processes and programs to be:

- effective in identifying pollution prevention opportunities,
- effective in facilitating improved environmental management,
- associated with a reduction in waste generated,
- associated with cost benefits, and
- associated with expected future benefits.

The review also identified emerging issues in facility planning, including:

- more effectively integrating planning, and environmental issues in general, into overall business management;
- improving cost accounting so that pollution prevention projects can compete better for capital;
- substituting environmental management systems, such as ISO 14000, for state-required pollution prevention plans; and
- targeting appropriate facilities, i.e., determining what size facilities are most likely to benefit from planning.

### *Hotlines*

Some states operate a telephone assistance service to provide technical pollution prevention information to industry and the general public. Hotline staff answer specific questions, provide referrals, and distribute printed technical materials upon request.

California, Connecticut, Michigan, and Pennsylvania are just a few of the states that operate pollution prevention hotlines. In Pennsylvania, the Center for Hazardous Materials Research (CHMR) provides small and medium-sized businesses with technical assistance via a toll-free hotline. CHMR's hotline also serves as a conduit for distribution of industry-specific fact sheets that provide targeted information on industries, such as chemical production, coal mining, petroleum refining, and paper manufacturing.

### *Computer Searches*

Some states perform computer searches to provide industry with up-to-date information about specific pollution prevention topics. Online capabilities allow pollution prevention programs to target their research efforts and address the particular needs of their clients. By searching the wide range of resources available electronically, states can provide industry with information about innovative pollution-reducing technologies, efficient industrial processes, current state and federal regulations, and many other pertinent topics. Over half the states provide this service.

### *Research and Collaborative Projects*

State pollution prevention programs frequently participate in research and collaborative projects with industry to foster the development of pollution prevention technologies and management strategies. Research activities can include a range of studies and surveys, database development, or data collection and analysis. State programs perform research both in the laboratory and in the field.

### *Workshops, Seminars, and Training*

Almost all state pollution prevention programs conduct workshops, seminars, and technical training for industry, government, and student groups. Some programs train state and local environmental officials to focus on pollution prevention opportunities as they carry out program office responsibilities. Other states emphasize training of pollution prevention staff to ensure a high level of expertise in the program.

For example, the Tennessee Waste Reduction Assistance Program (WRAP) has developed and delivered numerous presentations on waste reduction. Through 1994, WRAP has trained over 12,000 people. In response to the growing interest of Tennessee companies in solving their solid waste programs, WRAP has combined waste assessments and training efforts in Solid Waste Focus Groups. This program, in coordination with the Chamber of Commerce, trains industries to conduct snapshot assessments of their solid waste.

### **Textile Research in Rhode Island**

The Rhode Island Department of Environmental Management conducted research on pollution prevention in the state's textile industry. Activities included:

- Researching and identifying regulatory and policy initiatives that would encourage textile companies to incorporate source reduction measures and technologies into their process and facility operations.
- Identifying textile plants that represent the greatest potential risk to health and the environment through a comprehensive statewide survey, analysis of chemical release and offsite transfer data, and a review of the regulatory history of facilities.
- Researching, identifying, and evaluating cost-effective management and process operational methods, material substitutions, and technologies that could be used to reduce air/water releases and offsite transfers in facilities that represent the highest potential environmental risk.
- Analyzing textile industry discharges for toxicity.

This research will expand the knowledge base and technical resources available to Rhode Island textile companies to reduce pollutants at the source.

### *Publications*

Publications allow state pollution prevention programs to target businesses and the general public. Numerous programs develop and distribute newsletters, fact sheets, and reports with pollution prevention information.

Newsletters, for instance, are an effective way for state pollution prevention programs to disseminate information to industry, other state programs and agencies, and other states. Typically, newsletters feature case studies of companies that have benefited from the efforts of the pollution prevention program, articles about pertinent regulations and legislation, and notices of upcoming educational and outreach events. Many states' newsletters have remarkably high circulations. For example, Kentucky Partners, a state pollution prevention center, has published over 27 issues of its newsletter, *Waste-Line*, and has distributed each issue to a mailing list of approximately 7,000 people.

### *Grants and Loans*

A number of states distribute funds to independent groups that conduct pollution prevention activities. Such support is generally used to fund research and to run demonstration and pilot projects.

Arizona, for example, distributes Waste Reduction Assistance grants, which can be used to fund either source reduction or recycling projects for nonhazardous or hazardous waste. In recent years, most of the grants in this program have gone to industries involved in enterprises such as aircraft building, heavy metals recovery, mining, and waste management.

## **Regulatory Integration**

As discussed above, states are beginning to realize the importance of integrating the pollution prevention ethic into all areas of their environmental regulations. Some states have already begun to integrate pollution prevention into their regulatory activities; in other states, regulatory integration is only in the planning stages. Table 4-4 summarizes the current status of states' efforts to integrate pollution prevention into the following regulatory activities.<sup>16</sup>

- **Enforcement Settlements.** States may use enforcement actions to encourage companies to initiate pollution prevention activities to come into compliance. In some cases, penalties may be lessened if a company institutes pollution prevention measures, such as a Supplemental Environmental Plan (SEP). Settlements involving multimedia pollution prevention requirements have occurred in some states.
- **Permitting.** States may require firms to develop pollution prevention plans as part of the permit application package. The issuance of facility-wide, multi-

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<sup>16</sup> The focus of this table is the integration of pollution prevention into regulatory operations; voluntary pollution prevention efforts are not included.

**Table 4-4. Regulatory Integration of Pollution Prevention<sup>17</sup>**

State	Enforcement Settlements	Permitting	Compliance Inspections	Waste Management
AL				✓
AK	✓	✓	✓	✓
AZ	■	✓	✓	✓
AR				✓
CA	✓	✓	✓	✓
CO	✓	✓	✓	✓
CT	✓	■		✓
DE		✓	✓	✓
FL	✓	✓	✓	✓
GA	✓	✓	✓	✓
HI			✓	✓
ID		✓	✓	✓
IL	✓	✓	✓	✓
IN	✓		✓	✓
IA		✓	✓	✓
KS		■	✓	✓
KY	✓		✓	
LA	■			✓
ME				✓
MD	✓			✓
MA	✓	✓	✓	✓
MI	✓	■	✓	✓
MN	✓	■	✓	✓
MS				✓
MO				✓
MT				✓
NE			✓	✓

<sup>17</sup> Sources: EPA, *Ongoing Efforts by State Regulatory Agencies to Integrate Pollution Prevention into Their Activities* (September 1993); EPA, *Update on State Source Reduction Activities* (February 1996). [Note: The source reduction report includes some solid waste management practices not usually considered “pollution prevention,” e.g., recycling.]

**Table 4-4. Regulatory Integration of Pollution Prevention (Cont'd)**

State	Enforcement Settlements	Permitting	Compliance Inspections	Waste Management
NV				✓
NH			■	✓
NJ	✓	✓	✓	✓
NM				✓
NY	✓	✓	✓	✓
NC		✓	✓	✓
ND	✓		✓	✓
OH	✓	✓		✓
OK		■	■	
OR		✓	✓	✓
PA		✓	✓	✓
RI	■			✓
SC				✓
SD	■	■	■	✓
TN				✓
TX	✓	✓	✓	✓
UT	✓		■	✓
VT	✓	■	✓	✓
VA	✓	■	■	✓
WA	✓	✓	✓	✓
WV				✓
WI	✓	✓	✓	✓
WY	■	■	■	✓

✓ = regulatory integration underway; ■ = regulatory integration being planned/developed

dia permits is an increasingly popular approach for incorporating pollution prevention into the permitting process. Such permits may reduce cross-media transfers and identify additional source reduction opportunities.

- **Compliance Inspections.** States may conduct facility-wide, multimedia compliance inspections. Such inspections provide a more comprehensive, in-depth assessment of facilities' operations. Other types of pollution prevention activities include inspectors providing pollution prevention technology transfer and making referrals to state technical assistance programs.

- **Waste Management.** Many states have laws that require pollution prevention measures to be used in the management of solid waste and hazardous waste. States may employ source reduction measures to fulfill these mandates. The development of RCRA waste minimization plans can also contribute to pollution prevention efforts in the management of hazardous wastes.

A number of states have used pilot projects to test new approaches for integrating pollution prevention into their regulatory programs. Although such projects are usually designed for unique state or local conditions, they emphasize the range of options available to states. Pilot projects in Massachusetts, Ohio, New Jersey, Illinois and Indiana are discussed below.

### *Case 1: Massachusetts*

The Massachusetts Department of Environmental Protection first piloted a multimedia, pollution prevention-based inspection and enforcement program in 1986, known as the Blackstone Project. Based in part on the outstanding results of that project, Massachusetts has adopted a state-wide, prevention-based approach to compliance and enforcement called Waste Prevention F.I.R.S.T. (Facility-wide Inspections to Reduce Sources of Toxics). In recent years, grant outputs for air, water, and waste were negotiated as a single compliance/enforcement package. The Region and state are currently trying to develop and field-test a multimedia inspection protocol to meet media inspection requirements. Benefits of the project include: (1) promotion of pollution prevention through a whole-facility approach; (2) support for source reduction as opposed to control solutions for compliance problems; (3) increased efficiency from a multimedia approach; (4) development of a clear definition of compliance roles in inspection protocol; and (5) inspection of more facilities.

### *Case 2: Ohio*

Ohio's EPA developed and implemented a statewide, multimedia pollution prevention strategy applicable to the entire state and involving all of the Agency's divisions and programs. The Agency utilized RCRA grant funds from the Great Lakes Initiative to support these efforts. Under this program, the state also provided on-site pollution prevention for RCRA generators, developed a guidance manual for waste minimization planning for RCRA facilities, and prepared industry-specific pollution prevention fact sheets. Benefits have been: (1) initiation of pollution prevention activities under the RCRA grant, and (2) development of an overall long-term pollution prevention strategy for the state.

### *Case 3: New Jersey*

New Jersey's 1991 Pollution Prevention Act required the Department of Environmental Protection to conduct a facility-wide pollution prevention pilot project. The project requires the state to issue facility-wide permits that meet the requirements of all the media programs, and to attempt to integrate pollution prevention planning into the

permit process. The Department has assisted facilities in developing pollution prevention plans and facility-wide permit applications.

#### *Case 4: Illinois*

The Illinois EPA integrated pollution prevention concepts into its permit decisions, compliance agreements, and regulatory actions across all the media programs. The state produced a pollution prevention guidance manual for use by Agency permit and inspection staff in all bureaus. The manual currently contains instruction materials, but will continue to evolve as successful pollution prevention projects are implemented and are documented. Illinois also drafted a guidance document, based upon federal EPA guidance, for incorporation of pollution prevention and Supplemental Environmental Projects into enforcement settlements. Additionally, Illinois has launched a voluntary technical assistance program for industry, whereby participating companies work with the Agency on pollution prevention initiatives. In return, the Agency provides technical and regulatory assistance, including expediting permits, variance support, and adjusted standard support.

#### *Case 5: Indiana*

Indiana's Department of Environmental Management (IDEM) recognizes that successful integration of prevention into regulation is critical. IDEM's pollution prevention program staff routinely prepare Pollution Prevention Impact Analyses on draft and proposed environmental rules published in the *Indiana Register*. These reports identify obstacles to pollution prevention and opportunities to promote pollution prevention, such as multimedia approaches to compliance and permitting. Several rules have been modified based on pollution prevention concerns identified in these analyses.

In many tribal communities, basic environmental programs are still in the initial stages, and most tribes lag behind the states in pollution prevention infrastructure.

### Pollution Prevention On Tribal Lands

Prior to 1992, essentially no pollution prevention activities were under way on tribal lands. In 1992, the All Indian Pueblo Council in New Mexico became the first tribe to receive PPIS grant monies. Since then, 18 PPIS grants and 14 Environmental Justice grants have been awarded to tribes. Nevertheless, in many tribal communities today, even basic environmental programs are still in the initial stages, and many maintain a single media focus rather than a multimedia perspective.

#### **Development of Tribal Pollution Prevention Programs**

As with the states, environmental concerns and approaches to pollution prevention vary from tribe to tribe. Federal grant programs, such as PPIS, have provided tribes with the flexibility to begin addressing the most salient pollution issues on reservations. For example, Alaskan Native communities Chugachmiut and Kwethluk have focused their efforts on preventing pollution of local water resources, while tribes with

an agricultural base, such as the Poarch Creek Indians of Alabama, have concentrated on developing pollution prevention strategies for agriculture.

### *Barriers to Pollution Prevention*

Many tribes are located in rural, isolated areas where issues such as poverty and unemployment take priority over environmental concerns. Tribes rarely have sufficient resources—financial or professional—to devote to nascent environmental programs. As a result, many tribes are just now establishing basic infrastructure to address the most fundamental environmental problems. Promoting pollution prevention, which in this context is a more innovative and less tangible concept, presents a significant challenge.

Some tribes have agreed to allow states to exercise jurisdiction over the environmental affairs of the tribe. In these cases, tribes do not focus on developing their own environmental programs; but rather, they rely on state programs to provide environmental assistance. This arrangement can hinder the development of pollution prevention activities on tribal lands, as many states channel their PPIS and other pollution prevention funds to industrial sectors and do not pass resources along to tribes.

Another factor that has impeded the development of pollution prevention initiatives in tribal communities is a lack of communication between the tribes. Many tribal pollution prevention projects are local in nature and do not focus on developing a communication link to other tribes. As a result, few opportunities exist for the different tribes to develop a network for exchanging pollution prevention ideas.

### *Solutions*

To help the Native American community further develop pollution prevention activities, EPA, state pollution prevention programs, and tribal leaders have been working together to build networks among the tribes. These networks should help tribes find resources from other pollution prevention providers. At the first National Tribal Pollution Prevention Conference in August 1995, 62 tribes from 28 states met in Montana to discuss pollution prevention issues, principles, and methods. Several tribal organizations, including the National Tribal Environmental Council (NTEC) and the Inter-Tribal Council on the Environment (ITCE), have taken an active role in promoting information sharing among the tribes.

Tribal leaders and EPA realize that this early stage in the development of tribal pollution prevention activity is crucial. Pollution prevention as an environmental tool is still a novel idea to many tribes. Many tribal leaders are promoting pollution prevention as a cultural value necessary to make progress on reservations as well as a concept essential to protecting the environment.

### **Tribal Approaches to Pollution Prevention**

A few tribes have taken a broad approach to pollution prevention program development, focusing on building program infrastructure rather than implementing spe-

For some tribes, whose traditional beliefs are rooted in respect for nature and sustainable development concepts, the pollution prevention message is easily adopted.

cific projects. The efforts of these tribes closely resemble the pollution prevention activities conducted by the states. AIPC, consisting of 19 pueblos of New Mexico, used its 1992 PPIS grant to initiate a pollution prevention program. Key elements of AIPC's program include:

- Development of institutional structures within the 19 pueblos' governmental entities to ensure that pollution prevention is incorporated into decision-making and planning.
- Creation of incentives and elimination of barriers to pollution prevention.
- Development of a multimedia pollution prevention effort that works in coordination with state and federal programs.
- Development of a technical clearinghouse to provide educational and technical information.
- Collection, dissemination, and analysis of data to evaluate pollution prevention progress.

In 1993, AIPC received a second PPIS grant that was used to create a pollution prevention resource guide for the 19 pueblos as well as other Indian tribes in the region. The Navajo Environmental Protection Agency initiated a similar pollution prevention program in 1993.

Several tribes have focused their pollution prevention efforts on community education and outreach. To convince tribal governments to adopt pollution prevention policies and to raise cultural awareness of prevention concepts, tribal PPIS grantees have conducted workshops, developed curricula, and sponsored training sessions. The Passamaquoddy Tribe, for example, used its PPIS grant to provide informational brochures and cable TV broadcasts to the tribal community on water conservation, energy efficiency, and solid waste reduction.

Most tribes that receive EPA pollution prevention funding concentrate their efforts on activities aimed at a particular area of need within their community. For example, to address the problem of poor air quality on and near their reservation, the Port Gamble S'Klallam Tribe replaced several noncertified wood-burning stoves with new stoves and conducted an in-home training program to teach community members about the negative effects of wood burning on air quality.

### **Future Directions in Tribal Pollution Prevention**

As tribal environmental programs develop and Native American environmental managers move beyond the most immediate environmental problems on their reservations, pollution prevention ideas and programs will become further integrated into tribal programs. Tribes have already benefited from the resources EPA provides in terms of pollution prevention technical assistance, and will continue to do so. Since 1992, more tribes are applying for—and receiving—PPIS grants. As tribal pollution prevention programs develop and environmental managers gain experience in grant

proposal writing, federal and other (state/private foundation) resources will become more accessible to them.

Tribal environmental leaders, as well as EPA and many state agencies, are now beginning to improve communication about environmental issues between the tribes. Tribal environmental managers hope to incorporate more pollution prevention topics into existing meetings, such as the biannual tribal environmental conference hosted by EPA and new forums like the 1995 conference in Montana. In addition, leaders are encouraging increased Native American participation in the National Pollution Prevention Roundtable as a means to further networking and technical information exchange.

The efforts of tribal environmental leaders to educate the Native American community about pollution prevention has, in many areas, already laid the foundation for the cultural and attitudinal shifts necessary for adoption of the pollution prevention ethic. As education and outreach efforts continue, tribal awareness and acceptance of pollution prevention will continue to grow.

## Future Directions and Conclusions

This chapter has demonstrated how state and tribal programs have evolved since 1991. Many states have expanded their programs and moved from policy development to implementation. Native American communities have established a basis for further development of pollution prevention efforts. As they continue to develop, state programs face continuing challenges as they build on early successes in creating technical assistance programs and incorporating prevention into regulations.

■ **Follow up.** The first challenge facing state programs is to determine whether companies that receive state services are actually implementing pollution prevention activities as a result of the services. Even if a direct link cannot be made in all cases, states may be able to get a better feel for whether their message is getting through. A major barrier to collecting this information in the past has been limited resources. EPA has already begun to offer grants to the states to fund follow up research and measure success. Once state programs can identify facilities that are implementing pollution prevention, they can more easily measure the general effectiveness of their technical assistance recommendations and program services. To maintain future funding at both the state and federal level, it is imperative that states demonstrate the effectiveness of their programs.

■ **Regulatory integration.** Most environmental protection is implemented through state media programs. In order for pollution prevention to take hold, state media programs need to see how prevention can help achieve their goals. Prevention is important for regulatory programs because single media programs may have the effect of shifting waste across environmental media. The single media regulatory structure is not conducive to understanding these

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cross-media issues, or acting on them. Due to the difficulty in changing organizational biases and the time required to develop a pollution prevention mentality among state regulatory and compliance staff, states will continue to struggle with this issue over the near term.

- **Optimize pollution prevention funding.** States face continued challenges in expanding or even maintaining funding for prevention programs, in the face of continued pressure for budget cutting, and a changing framework for federal-state relationships. Despite demonstrated economic and environmental benefits, established technical assistance programs in some states are under threat of reduction or elimination by state legislatures. If states relinquish a regulatory responsibility in an environmental program, it is likely that the federal government will take over that responsibility. There is no analogous authority for an increased federal presence in non-regulatory pollution prevention technical assistance programs. Federal funds cannot fill the gap. The Pollution Prevention Act requires states to match any federal funds provided in grants under the Act.

P2 technical assistance programs face a major challenge in piecing together a stable level of funding from a variety of sources, and maintaining political support for these programs. States will lose expertise and momentum for prevention if these programs are cut, even if they are reconstituted in a similar form elsewhere.

The National Environmental Performance Partnership System and the Performance Partnership grants can provide additional flexibility for states to develop and pursue their own environmental objectives. These changes in federal-state relationships might give states the ability to shift resources to multi-media approaches, or to integrate prevention into regulation. They may also make it easier for states to shift resources out of prevention.

Tribal programs face the following challenges in the coming years:

- **Environmental program development.** As tribal environmental programs mature and Native American environmental managers begin moving beyond addressing the basic environmental problems on their reservations, pollution prevention ideas and programs will become further integrated into tribal programs. Tribes have already benefited from the resources EPA provides for pollution prevention technical assistance, and will continue to do so.
- **Communication barriers.** A lack of communication between the tribes has impeded the development of pollution prevention in tribal communities. To help the Native American community further develop pollution prevention activities, EPA, state pollution prevention programs, and tribal leaders have been working together to build networks among the tribes. These networks should help direct tribes to resources from other pollution prevention providers and allow them to further develop their programs.

- **Pollution prevention education.** The efforts of tribal environmental leaders to educate the Native American community about pollution prevention has, in many areas, already laid the foundation for the cultural and attitudinal shifts necessary for adoption of the pollution prevention ethic. Tribal communities are beginning to recognize pollution prevention as a value necessary to make progress and as a way to save money and resources. As education and outreach efforts continue, tribal awareness and acceptance of pollution prevention will continue to grow.



## Promoting Pollution Prevention: The North Carolina Perspective

by

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The role of the states in promoting pollution prevention has changed over the last five years. Five years ago, states were looking to EPA for guidance in institutionalizing pollution prevention. While this is still true today for some states, many other states have taken the lead in making pollution prevention an integral part of environmental management. This is important in that pollution prevention has moved beyond “special projects,” to being incorporated into rule making, policy development, and even job descriptions.

It has never ceased to amaze me that what seems so obvious -- that prevention of pollution is superior to the control or remediation of pollution -- is apparently not that obvious to a large proportion of both the environmental regulators and the folks they regulate.

My “answer” to what states can do to promote pollution prevention is to try and ensure that the pollution prevention staff participates in all substantive policy discussions, i.e., that we always have a “pollution prevention voice” at the table. As an example, North Carolina has been consumed for the past year with environmental concerns related to animal waste and other non-point source pollution related to agricultural practices. While everyone was patting themselves on the back about a new requirement to provide buffers along stream segments, the pollution prevention staff reminded us that this was merely an “end-of-pipe” technique with the buffers controlling the pollution. The key to true water quality protection was in *preventing* the pollution from getting to the buffers with practices such as nutrient management.

Beyond these specifics, a broader and very important activity for states to engage in must be the development of appropriate outcome measures or identification of environmental indicators of environmental protection practices. If we are measuring the right parameters, then prevention will become the obvious and best way to achieve the desired outcome. I believe one of our greatest problems is that we chose early on to define pollution prevention as an end unto itself rather than as a means to an end - which is better environmental protection and smart environmental management.

The most difficult challenge state agencies must face in mainstreaming pollution prevention into their environmental programs is changing the culture of environmental protection and regulation!

In 1990-1991, when it became evident that pollution prevention was not as intuitively obvious to environmental regulators as some anticipated, we began talking about the need for cultural change. This broader debate allowed us to place pollution prevention practices within a philosophical context so that we could analyze the way in which people do, or do not adapt to or embrace change.

While this helped us understand better what was happening, it did not substantively accelerate the process. Change occurs slowly -- as we have seen with pollution prevention and are seeing today with the new partner-

ship system that is intended to redefine State - EPA relationships. But patience is a virtue and persistence eventually pays off. Keeping the pollution prevention voice at the table, measuring the right outcomes, and taking advantage of industry's gradual recognition that broader environmental management systems, such as the ISO 14000 standards, make more sense for the corporate bottom line and for environmental protection, than do media-specific, one-pipe-at-a-time permit limits, have all contributed to our progress.

One of the most promising, innovative pollution prevention programs about which I am most excited, is the growing appreciation and adoption of broad, environmental management systems, the most popular one being the ISO 14000 standards. We are finally realizing that, as environmental regulators, we must reach beyond our previous goal of having the regulated community in compliance with all its permits at a given time. A quick assessment of the Toxic Release Inventory showed us that this kind of regulatory system is not sufficiently protective of our environment. Rather, we should be educating ourselves about these systems and identifying incentives for industry to adopt them.

In North Carolina, we are examining these systems and testing the theory that they do result in superior environmental performance and protection. I have challenged my staff to pursue four main questions: (1) What should the relationship be between a company that adopts these systems, or becomes certified to the standards, and an environmental regulatory agency? (2) How do we assist small- and medium-sized companies to adopt these systems? (3) What kind of environmental indicators should we be measuring to ensure that we are, in fact, enhancing environmental protection? and (4) How do we keep the entire process transparent to the public and the appropriate stakeholders involved?

In response to a question about what makes this system work, I suggest that it is too early in the process and the jury is still out. Companies are adopting these systems because the outcomes support corporate goals - both economic and environmental. I believe that environmental regulators will soon begin to appreciate the results of these programs. It will not be sufficient, however, for environmental regulators to continue enforcing environmental rules in the same old way for companies that have truly moved beyond just compliance as a consequence of their environmental management system. We need to pursue new relationships between regulators and those they regulate, and among regulators, regulated groups, and the public. The need for cultural change continues!



## Preventing Pollution Through New Partnerships and Incentives

by

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*Mary Gade is the immediate past president of the Environmental Council of the States.*

In the summer of 1995, the Illinois Environmental Protection Agency celebrated its twenty-fifth anniversary. Up until recently, much of our focus has been on using “command and control” approaches to curb the release of pollutants into the environment of our state. So far, we have had good results. The level of compliance for industrial facilities subject to air and water pollution regulations in Illinois now exceeds 90 percent. We are proud of what we have accomplished.

In spite of these accomplishments, however, we are still experiencing ambient air quality problems in our larger urban areas, some of our lakes and streams do not meet the water quality standards, and too much waste is being generated and shipped off-site for treatment or disposal. Obviously, more work needs to be done to protect our air, water, and land. We know that we cannot rest on our laurels.

At present, we do not expect to see the passage of new regulations mandating the use of more extensive add-on controls, and we do not necessarily want them. High costs, marginal returns, and limited resources make such traditional approaches unappealing. Instead, we believe the next generation of environmental improvement will likely be achieved through technological and continuous improvement programs that take place within facilities. Additional improvement also will result by using common sense approaches to bring more firms, particularly smaller ones, into the regulatory system. To be successful, these efforts will require a new way of doing business, involving better tools and communication skills. And one thing is certain -- pollution prevention will be an integral part of this effort.

In the last year, our state has initiated a number of compliance assistance programs for small businesses, including our “Clean Break” amnesty program, technical assistance hot line, and easy to understand guides on environmental regulations. The next step will be to provide more in-depth training to our inspectors and permit writers on regulatory assistance issues for small businesses. This training initiative will involve pollution prevention, including arming our staff with laptops and software aimed at providing information on sector-specific techniques and model facilities. We will be retooling our total quality management program to focus on these innovations, recognizing that we must improve our client awareness and listening skills so that we can communicate more effectively with the regulated community and others.

We have embarked on a collaborative initiative with business groups and environmentalists, known as the Great Printers Project, to give special recognition to lithographic printers seeking to achieve compliance through pollution prevention. We believe this partnership will become a model for bringing together different interest groups and government to work cooperatively for environmental change.

We want to find new messengers to promote pollution prevention, knowing that many business owners are distrustful of government bureaucrats and not likely to respond to conventional pollution prevention promo-

tional campaigns. To this end, we are developing a pollution prevention curriculum for accountants and looking for ways to promote pollution prevention through attorneys, lenders and suppliers that are considered more reliable sources of information, especially small businesses that do not have environmental staff or resources.

Collaborating with community economic development groups also will be a priority for our agency. Pollution prevention is not only good for the environment but it can be powerful tool to foster industrial modernization and retention. By working with local technical assistance providers, we can help companies understand their environmental obligations, identify opportunities for regulatory reform and recommend pollution prevention measures that may help them save money, improve efficiency, or reduce their regulatory requirements -- a plus for everybody.

In the case of larger companies, we must create more incentives for them to go beyond compliance with existing environmental rules to developing environmental management systems that will take advantage of pollution prevention opportunities. To this end, Illinois is one of the first states in the country to pass legislation allowing industries and other regulated entities to pursue regulatory innovation or "XL" projects on a pilot basis. Through this initiative, we will be encouraging cooperating companies to achieve pollution reductions in excess of existing regulatory requirements through systematic approaches that emphasize pollution prevention, stewardship, stakeholder participation, and other measures.

The next several years will tell us whether a fundamental shift in environmental management, from "command and control" to more cooperative prevention-oriented strategies, will help us address our high priority environmental problems. It is going to take more than just a simple shift in priorities and resources. We must develop new types of partnerships, creative incentives, and improved forms of communication to make pollution prevention the absolute top priority for all of our environmental protection efforts.



## Pollution Prevention Innovators – State, Local and Tribal Governments

by

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State, local and tribal governments, the early pioneers of the pollution prevention movement, continue to play a key role in developing and promoting prevention-first approaches nationwide. However, times and roles have changed. Five years ago, state and local governments were still in the midst of experimenting with a number of different approaches and techniques. Today as a result of this experimentation, we have collected and analyzed much data on what has worked and what has not; we now have a track record.

The challenge for today's pollution prevention government practitioners is to go beyond the "low hanging fruit" and tackle the more difficult institutional changes that are necessary to make pollution prevention a central cornerstone of our nation's environmental policy.

To achieve this culture change, pollution prevention practitioners from federal, state, local and tribal governments must be employed at upper management levels within their agencies and have input in all core policy discussions. In addition, the current statutory and regulatory framework that relies on traditional end-of-pipe environmental management approaches, such as control and treatment, must be modified to ensure that pollution prevention is a priority, not a peripheral program.

Many new and innovative multi-stakeholder partnership programs are demonstrating the benefits of pollution prevention and helping it spread both nationally and globally. For example, the NPPR's Materials Accounting Project, a collaborative effort between the NPPR and member companies of the Business Roundtable Industrial Pollution Prevention Council, is examining ways materials accounting can enhance the efficiency and environmental performance of industrial facilities and whether chemical use reporting can meet the diverse needs of industry, government, and public interest shareholders.

The Great Printer's Project, another innovative multi-stakeholder program which includes representatives from the Environmental Defense Fund, Printing Industries of America, and the states of Illinois and Wisconsin, aims to provide small business in the printing industry with one-stop shopping for environmental management information.

Internationally, the European Roundtable on Cleaner Production (ERCP) has succeeded in attracting representatives from all over Europe to its annual conferences. The NPPR is also working with the U.S.-Asia Environmental Partnership (US-AEP) to form roundtables in eight southeast Asian countries. Efforts to form roundtables are also underway in Africa, the Middle East, and South America. These organizations bring together government officials, members of industry, and non-governmental organizations.

Lastly, the United Nations Environment Program (UNEP) is working with NPPR on a P2 Declaration that will change the course of environmental policy by committing heads of states to adopting a national environmental policy based on prevention approaches. These efforts demonstrate how the concept of preventing pollution (prevention first) is becoming ingrained in the minds of businesses, government agencies, and non-governmental organizations around the world.